Computer Organization and Design (4th)
by Hennessy, Patterson
Chapter 6.5, Problem 1E

Step 1

If data transfer rate is constant, then performance is increased. The disk data transfer rates always outpaced improvements with disk alternatives.

There is no penalty for either seek time or for the disk rotating into position to access memory. In effect, if data transfer time remains constant, performance should increase. What is interesting is that disk data transfer rates have always outpaced improvements with disk alternatives. Flash is the first technology with potential to catch hard disk.

Computer Organization and Design (4th)
by Hennessy, Patterson
Chapter 6.5, Problem 2E

Step 1

a) No, cost is not a design factor. Flash drive memory system is not applicable in online NASA Satellite database. Satellite database are huge amount of databases and flash drive is highly expensive. Performance gain is not significance when compared to expense.

Step 2

b) Yes. Cost is a design factor for video gaming system. As video gamming system requires high performance system, thus the use of flash memory makes it much benefited.

Computer Organization and Design (4th)
by Hennessy, Patterson
Chapter 6.5, Problem 3E

Step 1

a. Each application would be inappropriate for a solid state flash drive for online NASA Satellite database that cost may be a design factor. In some cases decrease of download time is highly beneficial, satellite requires low speed data rate. So, there won't be any gain in use of flash drive.

Step 2

b. Yes, Each application would be inappropriate for a solid state flash drive for Video Gaming System that cost is a design factor that the use of flash drive is beneficial to video gamming system.